

Biotechnology and Biopharmaceuticals—Transforming Proteins and Genes into Drugs

Rodney J.Y. Ho and Milo Gibaldi; Hoboken, NJ: Wiley-Liss, 2003; ISBN 0471206903; 556 pages

Biotechnology and biopharmaceuticals is a good review of how drugs are being developed today. The book is organized into three parts and has sections with numerous tables and graphs summarizing history of biotech, important terms, drugs, procedures and other information important to this new and quickly expanding field. New technologies, such as combinational chemistry, genomics, proteomics, bioinformatics and robotics, are mentioned. These technologies helped develop the first recombinant biotech drug—human insulin—in 1982.

Part 1 of the book highlights key differences between discovery and development of small molecules and biopharmaceuticals. Biotech spends 20% of revenue on R&D compared to 6–18% for large pharmaceutical companies. There are graphs and tables that summarize this as well as drug development, fast-track timelines for drugs and other information. Review of research, such as basic research (generates), translational research (integration) and applied research (development), results in patient benefits (benefits are cure, treatment and better disease management). One in five molecular entities is approved by the FDA. Five-thousand molecular entities are evaluated to come up with five leading candidates for drugs. It is required by the FDA that an IND number be used for each indication even if it is the same drug. A drug being approved under the

drug orphan class can mean a difference in billions versus millions in revenue for a company. Because of this, many drugs are studied in parallel. This means several indications at one time. This gives the drug marketplace leverage. Orphan drug means that particular drug is free from competition. The newer technologies have made it even more important to target the right disease with the right molecule.

There is a good review of DNA research terminology. Different phases of clinical trials are defined. Phase-I trials have 20–100 subjects to assess most common acute side effects, highest dose tolerable, and persistent drug levels and metabolites. Phase-II trials have well-defined weight, age, severity, general health and randomized risk factors. It is important that the control group be as similar as possible to the treatment group. Single-blinded studies (patients do not know what therapy they are getting) and double-blinded studies (patients and investigators do not know who is receiving treatment) are included in this trial group. Phase-III trials are designed to collect data under rigorously controlled conditions to evaluate effectiveness, safety and overall analysis of risk–benefit relationship of a medication. This usually takes up to four years. Phase-IV trials are long-term post-marketing trials.

There are excellent tables and figures on the FDA review approval process. Pharmacology is reviewed briefly with respect to the new technology. Protein modification, ELISA, dose therapeutic response, therapeutic index for drugs, biological drugs and dose route administration are reviewed.

Part 2 reviews therapeutics based on biology, interferon, antibody antitoxin, vaccines and review of immune system. Much

of this section is like the PDR or a pharmacology book that does not have up-to-date information on the drugs reviewed. This section could have benefited from an online part of the book that would have given up-to-date information on medication.

Part 3 reviews advance drug delivery, pharmacogenetics (gene identification, selecting the right medicine for the right patient, gene and cell therapy and genomics proteomics future developments) and emphasizes proteins as being the functional units that control disease.

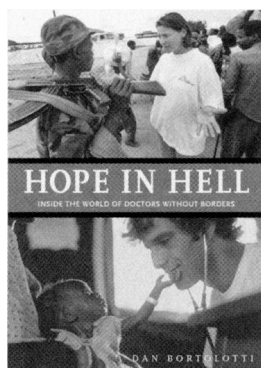
I would recommend this book to anyone that wants a good overview of the future possibilities in medicine. Because much of the research is changing so fast, I would refer readers to *Science* and *Nature*, as well as other similar publications for up-to-date information on the technology affecting medicine today.

Reviewed by
Robert L. Jackson, MD, FAAD, FASDS
www.2by2.net/robjackson
www.4DERM.com/DrJackson
Memphis, TN

Hope in Hell: Inside the World of Doctors without Borders

Dan Bortolotti; Richmond Hill, Ontario: Firefly Books, 2004; ISBN 1552978656; 304 pages; \$29.95

Recent advances in molecular biology, informatics and other technological developments may be affecting medical practice in the developed world. Nevertheless, people who live in regions where political instability and economic deprivation are present and basic elements of the medical infrastructure are absent are often unable to access simple medical



care, let alone advanced medical science. In these places—war zones, refugee camps and other marginal areas—groups like *Médecines sans Frontières* (MSF) attempt to provide emergency medical relief. In *Hope in Hell*, Dan Bortolotti, a journalist who has written about pandas, tigers and space missions for juvenile nonfiction, turns his hand to the more adult subject of portraying the members of MSF.

Bortolotti criticizes mainstream journalism's treatment of MSF for emphasizing heroic doctors who travel to exotic locales to provide medical treatment despite risks posed by hostile governments and barriers erected by ineffective international organizations in the midst of war and famine. As he puts, "a nuanced portrait is always more interesting than a caricature" (page 16). Unfortunately, *Hope in Hell* fails on two counts. First, *Hope in Hell* fails to deviate from mainstream journalism's treatment of MSF. Second, although *Hope in Hell* does not engage in caricature, the portrait it provides leaves no clear image of the organization beyond that which would be provided by caricature.

Mainstream journalism's sensationalist coverage of MSF is accurately described in the introduction. This account is properly complicated in chapter 2, where Bortolotti provides a brief history of MSF and the conflicting motivations of its founders. The remainder of the text (chapters 1

and 3–10), however, replicates the errors of mainstream journalism, perhaps reflecting the author's training as a journalist. In a combination of disaster pornography and humanitarian travelogue, these chapters present crystallizations of nearly 100 interviews with doctors. The interviews discuss the experiences that MSFers have had working in countries ranging from Angola to Afghanistan and from the Ivory Coast to Sri Lanka. Although most of these experiences occurred in the last five years, some range back 25 years. The conditions in each place include civil war, genocide, famine, a foreign aggressor or a combination of these factors. In each case, Bortolotti presents the doctor (with a few supporting characters) as a heroic individual traveling to an exotic land to provide treatment at risk of life and limb despite governmental barriers and the discouragement of other international actors. Thus, *Hope in Hell* enacts the very errors Bortolotti identifies in mainstream journalism and provides little depth beyond that contained in newspaper coverage of MSF.

This lack is reinforced by *Hope in Hell's* description of MSF. Moreover, Bortolotti asks questions that MSFers argue lead to an improper understanding of their organization. Although the text explicates the need for a thorough portrait, Bortolotti reduces this need to two elements. He indicates that, although "MSF volunteers are commonly asked, 'Why do you do this kind of work?' The query annoys most of them, not only because of its tiresome frequency but because motivations are difficult to distill into a concise answer" (page 77). Nevertheless, Bortolotti asks this question and indeed distills it into a concise answer through chapters 3–7: MSFers want to provide medical aid to the least fortunate.

In addition, Bortolotti writes, "If there's one thing that annoys MSFers more than being asked why they do humanitarian aid work, it's being asked whether they're afraid of getting killed" (page 210). The answer, according to chapters 8 and 9, is that they are afraid, but they get over it to do the job.

Although the author provides many examples drawn from his interviews with MSFers to support these answers, they stand in stark contradiction to the author's call for nuance. Rather, a series of points to support the overall conclusion that MSFers are motivated by humanitarianism and another series of points to support the overall conclusion that MSFers are able to separate thoughts about death from their work performance are offered as the whole of the "nuance" in this text.

Significant elements that could be developed in the text to provide a more thorough portrait are ignored. For instance, most of the doctors described in the book are white, male and middle- or upper-class. The fuller image of this "face" of MSF as compared to the "face" of the persons assisted by MSF is absent. Does the image of a white MSF play well to the sub-Saharan-African and Southeast-Asian communities? Or does the male image of MSF have an effect on the patient populations indicated in the book (about three-quarters of whom are female, judging by Bortolotti's accounts). The impact of social class is briefly indicated in chapter 9 but only as to how MSFers might react to returning home and not on their impressions of their patients when in the field.

There is a need for books about nongovernmental organizations that effectively address health crises in the less-developed world. Although there is the good intention behind this book, *Hope in Hell* fails to become more than

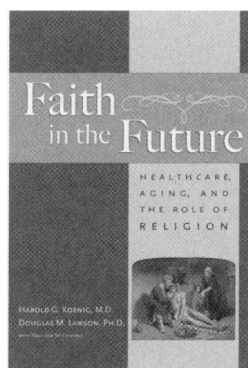
a compilation of anecdotes about sketchily drawn characters. The author fails to reach his self-identified objectives. This book is not recommended.

Reviewed by
Benjamin R. Bates, PhD
School of Communication Studies
Ohio University
batesb@ohio.edu

Faith in the Future: Health Care, Aging, and the Role of Religion

Harold G. Koenig, MD and
 Douglas M. Lawson, PhD with
 Malcolm McConnell;
 Templeton Foundation Press;
 ISBN 1932031359; 216 pages;
 \$24.95

Harold Koenig, MD, well-known researcher in the fields of faith and medicine, has studied the relationship between religion/spirituality and health. He has published extensively in the fields of mental health, geriatrics and religion. *Faith in the Future: Health Care, Aging, and the Role of Religion* accurately assesses the approaching healthcare crisis in America due to the increase in the elderly population, because the baby boomers are aging. The authors forecast that not only will there be a significant increase in the elderly population, but this increase will mean an increase in the number of elderly with chronic illnesses and disabilities. These persons will require long-term healthcare, which means spiraling healthcare costs and increasing pressure on the already overburdened healthcare system. The authors make their case. It is a fact that even today healthcare for the elderly and other groups in society is costly. Koenig notes, "Medicare expenditures will double from the 1999 budget of \$213 billion per year to over \$450 bil-



lion annually by 2011." Government-funded healthcare programs and providers as well as private healthcare providers will go out of business, the authors predict. Clearly, the healthcare crisis will get worse without some type of intervention.

Koenig, et al. offer several viable solutions to the increasingly costly healthcare for the growing elderly population. I strongly recommend reading this book because of the multiplicity of creative and doable, though not easy, solutions offered in this book. Among the potential solutions to the pending healthcare crisis is the faith community. Faith-based models of care can effectively address current and future healthcare needs of the aging population through prevention, education, advocacy and caring. Healthcare can and should be viewed as a ministry. I will address this solution because I have initiated health promotion and disease prevention activities in my faith community.

Koenig asserts, "Congregations can lead a critical effort to help alleviate a potentially major social disaster." The faith community is charged and challenged to help lessen the threatening healthcare crisis in the elderly population by establishing parish nursing and wellness ministries whose function would be to provide disease prevention and health promotion/education as well as a support network. Health ministries have the potential to build healthy communities. This idea is not for-

eign to faith communities because of their caring tradition. *Faith in the Future* provides a wealth of evidence that links religious faith and practice with disease prevention and healthy living.

Congregations and faith communities can fulfill the mandate in the 21st century by forming medical-religious partnerships with healthcare institutions, government agencies and philanthropic organizations in an effort to meet the challenges ahead. Churches, mosques, temples, synagogues and other religious institutions can provide resources to help meet the increasing needs of the increasing elderly population. Koenig agrees, "There is a vast reserve of compassion, organizational skills and community leadership, currently present in our spiritual and religious institutions... to meet many of our pressing health care needs." Parish nurses and wellness ministries across the country have been effective in impacting health behavior through health promotion and disease prevention activities, and this book describes several existing and effective models.

If the authors wanted the reader to become empowered to put their faith into action, their mission has been accomplished. As a clergyperson and a healthcare professional working and serving in a city where the disease burden for most chronic illness is high, working and serving in an epicenter for the AIDS epidemic where we are now witnessing increasing infection rates in African-American women, working and serving in a community known as "the borough of churches," I am challenged by the authors to put my faith into action. I am challenged to work so that my faith community becomes an epicenter of health promotion and disease prevention. I am challenged to see that my faith community maintains its integrity and authenticity as a car-